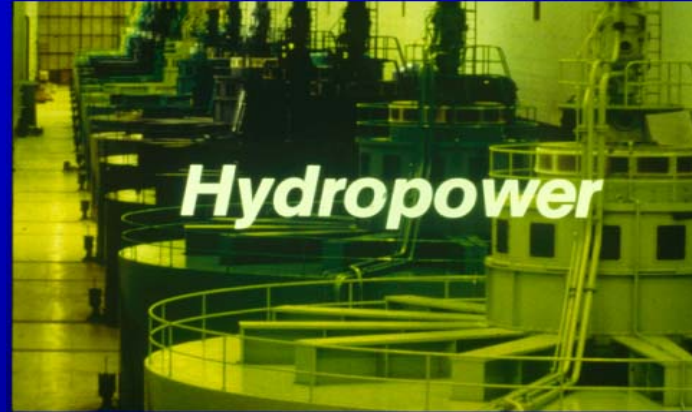


US Army Corps of Engineers

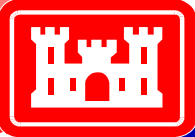


Briefing for

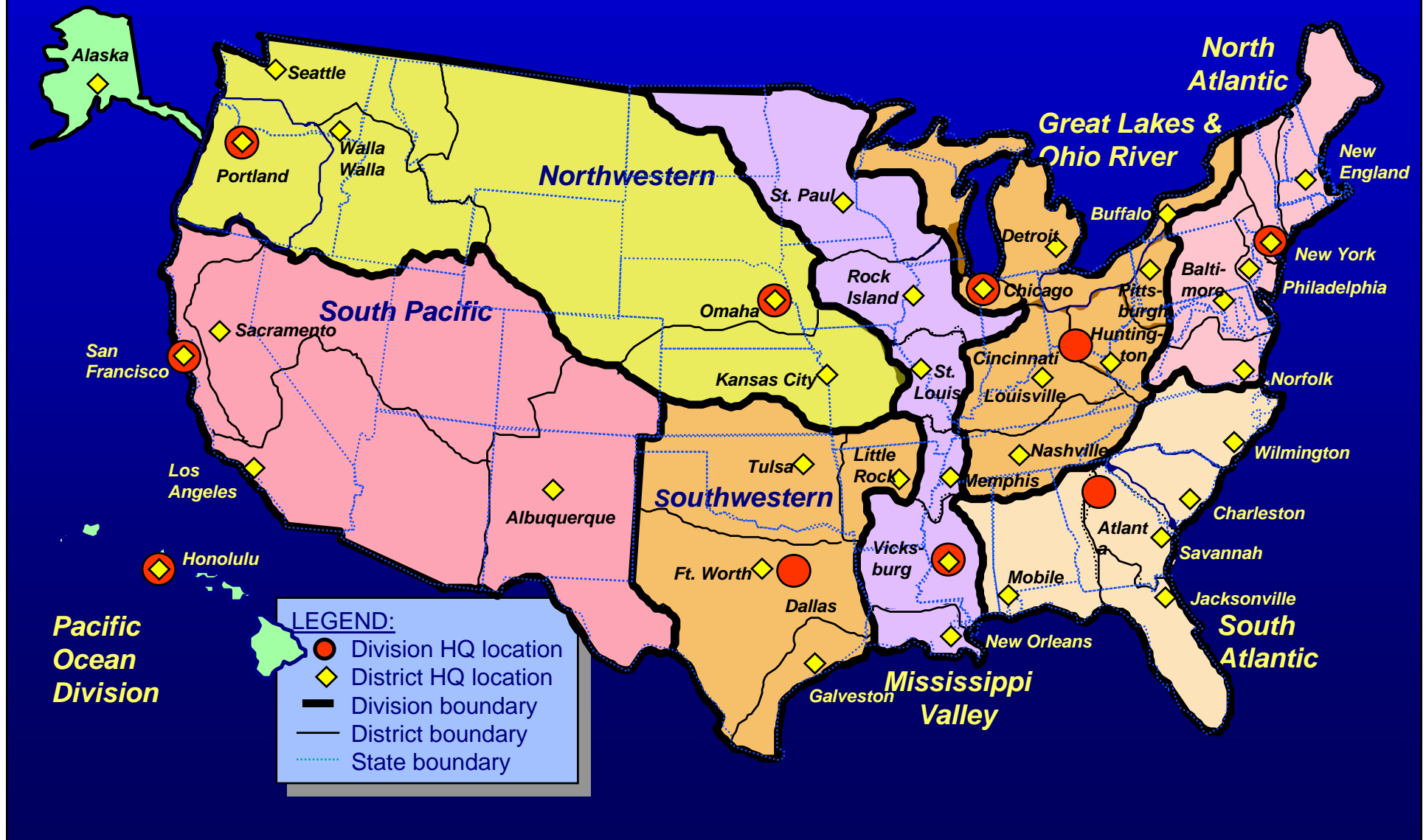
Dr. Cao Guanjin, VP, & Delegation

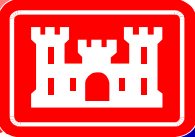
**CHINA THREE-GORGES PROJECT
Corp. (CTGPC)**

25 October 2004



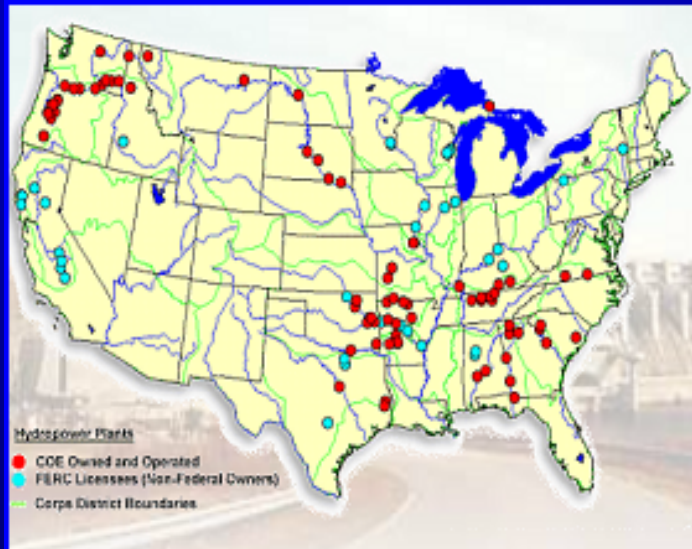
Civil Works Divisions/Districts



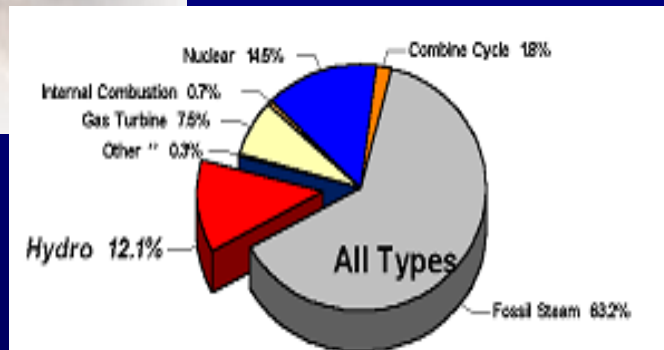
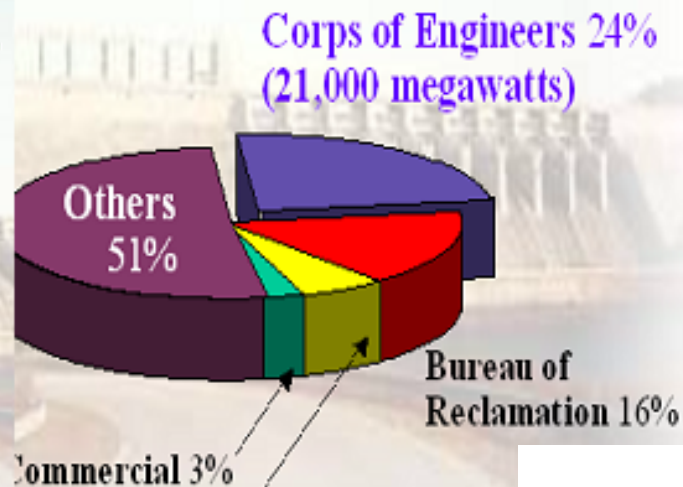


The Corps Hydropower

Corps Hydro= 24% of US hydro; 3% of US electrical power; 18 \$ billion investment; 75 major projects; 375 generating units; 100 billion KWh/year; \$450 million average annual revenues (2004)



Tennessee Valley Authority 6%





75% of Corps Hydro in NWD

NWD-NP Hydropower

65% of Corps Installed Capacity is in NWD-Columbia; 75% in NWD

Largest NWD-NP Hydropower Dams (by MW Install. Cap.)

Chief Joseph (NWS) 2,460

John Day (NWP) 2,160

The Dalles (NWP) 1,800

Bonneville (NWP) 1,093

McNary (NWW) 980

LWG, LGS, LMN (NWW) 810 (each)

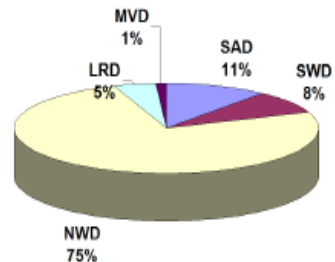
IHR (NWW) 603

Libby (NWS) 525

Dworshak (NWW) 400

Total Willamette (NWP) 320

CORPS HYDROPOWER CAPACITY BY DIVISIONS

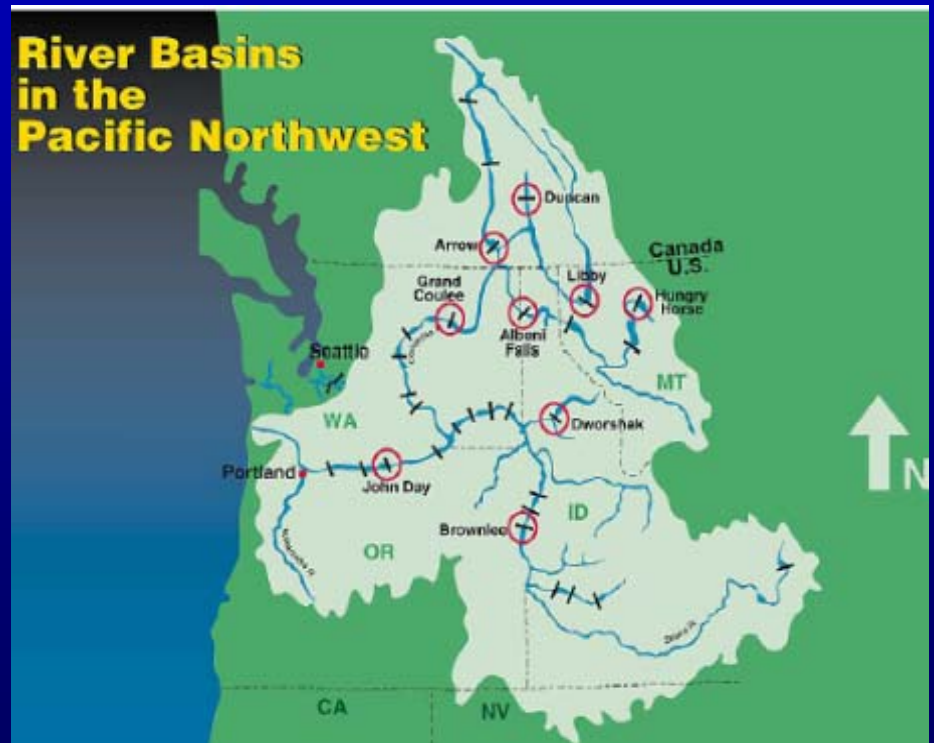


Bonneville Dam Second Powerhouse



12,000 MW Installed Capacity (63% of Corps total) in Columbia River Basin; Total Usable Storage: 42 Maf; Av. Runoff=134 Maf; Flood control Storage=40 Maf (49 km³)

River Basins in the Pacific Northwest





Two Corps Centers of Expertise

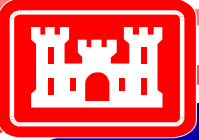
TWO HYDROPOWER CENTERS OF EXPERTISE:

- Hydropower Analysis Center (HAC):
hydropower and water resource planning and analysis
(originally established in 1949)
- &
- Hydroelectric Design Center (HDC):
engineering and design
(originally established in 1948)



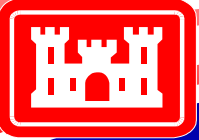
- ☐ Powerplant Rehabilitation
- ☐ River Basin Analysis
- ☐ Cost Allocation and Reallocation
- ☐ Power Value Computation
- ☐ Other Hydropower Studies
- ☐ Columbia River Treaty Support
- ☐ Training & Guidance

- **Planning Support**
 - Recon and feasibility studies
 - Rehab and uprate studies
- **Engineering Support**
 - Equipment design and specification
 - Support Equipment
 - Testing
- **Construction/Operation Support**
 - Support during installation, acceptance
- **Research and Development**
 - Design support to labs.



Trends & Challenges

- Hydro is one of many project functions
- Best for base load and/or peaking
- Equipment & Infrastructure generally need rehab
- No new hydro construction starts; new energy sources
- New funding initiatives
- New operating criteria and priorities
 - ✓ storage reallocation; new energy sources
 - ✓ new environmental constraints
 - ✓ new requirements (ESA, CWA); tighter compliance
 - ✓ water management responsibilities are shared
- Role of Research & Development
- Open to international assistance/cooperation



Additional Information

- **Hydropower Gateway**

<http://operations.usace.army.mil/hydro.cfm>

- **Northwestern Division Water Management**

<http://www.nwd-wc.usace.army.mil/>

- **Northwestern Division Power Branch**

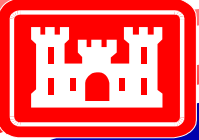
<http://www.nwd-wc.usace.army.mil/PB/mainpage.html>

- **Hydropower Analysis Center**

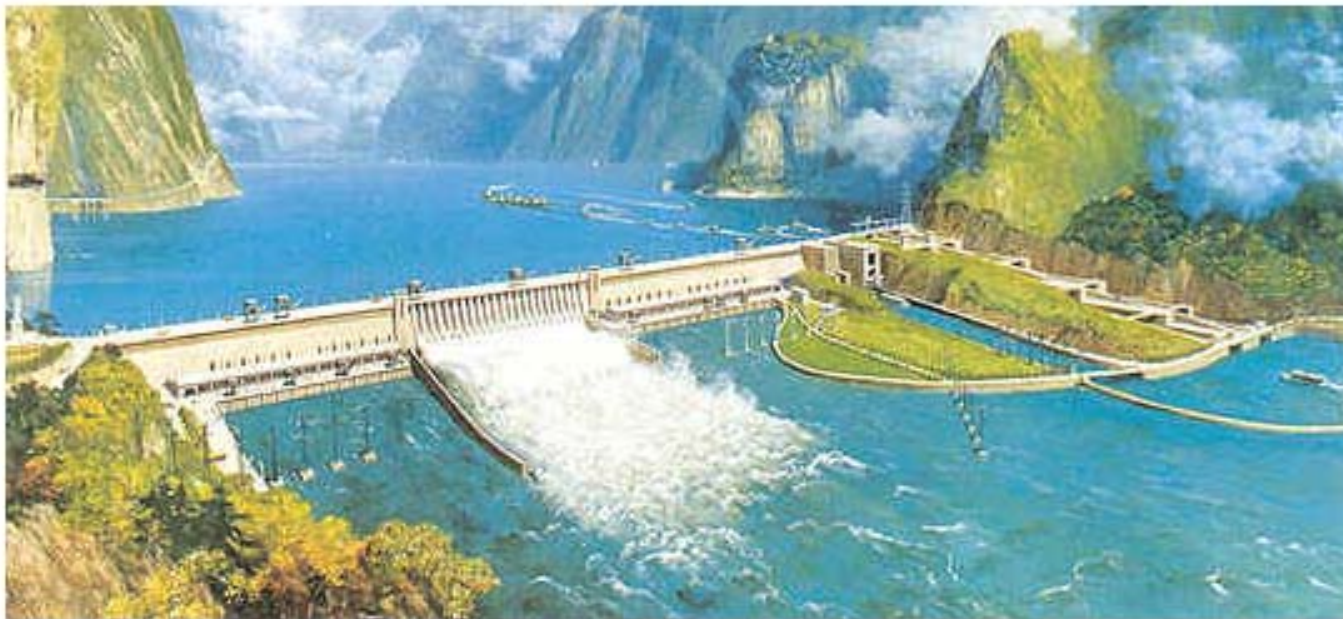
<http://www.nwd-wc.usace.army.mil/PB/welcome.html>

- **Hydroelectric Design Center**

<http://www.nwp.usace.army.mil/HDC/home.asp>



Xie Xie! Thank You!



Model of the Three Gorges Project